

**U.S. Pat. Appl. Ser. No. 10/583,054
Attorney Docket No. 10191/4619
Reply to Office Action of November 13, 2009**

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-11. (Canceled).

12. (Currently Amended) A [[The]] method according for operating a metering valve which sets a flow rate of a reagent to claim 11 be introduced into an exhaust gas area of an internal combustion engine, further the method comprising:

providing a diagnosis of the metering valve including an analysis of a measure of a flow rate on the basis of a pressure difference during a diagnosis time, wherein the providing includes starting the diagnosis with [[the]] a diagnosis start signal, which triggers a diagnosis device control unit;

after an occurrence of the diagnosis start signal, bringing the reagent to a predefined diagnosis start pressure while the metering valve is kept closed;

then setting the metering valve at a predefined flow rate;

analyzing the pressure difference occurring during the diagnosis time; and

analyzing an amount of reagent dispensed by the metering valve during the diagnosis time and collected in a graduated breaker.

13. (Currently Amended) A [[The]] method according for operating a metering valve which sets a flow rate of a reagent to claim 11 be introduced into an exhaust gas area of an internal combustion engine, further the method comprising:

providing a diagnosis of the metering valve including an analysis of a measure of a flow rate on the basis of a pressure difference during a diagnosis time;

after an occurrence of a diagnosis start signal, bringing the reagent to a predefined diagnosis start pressure while the metering valve is kept closed;

then setting the metering valve at a predefined flow rate;

fixedly predefining the pressure difference; and

providing a warning signal when the diagnosis time exceeds a predefined diagnosis time limit.

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14. (Currently Amended) A [[The]] method according for operating a metering valve which sets a flow rate of a reagent to claim 11 be introduced into an exhaust gas area of an internal combustion engine, further the method comprising:

providing a diagnosis of the metering valve including an analysis of a measure of a flow rate on the basis of a pressure difference during a diagnosis time;

after an occurrence of a diagnosis start signal, bringing the reagent to a predefined diagnosis start pressure while the metering valve is kept closed;

then setting the metering valve at a predefined flow rate;

fixedly predefining the diagnosis time; and

supplying a warning signal when the pressure difference exceeds a predefined pressure difference limit during the diagnosis time.

15. (Currently Amended) The method according to claim [[11]] 14, further comprising providing an adaptation of a metering valve signal delivered by a metering control unit to the metering valve during metering operation as a function of the ascertained measure for the flow rate.

16. (Currently Amended) The method according to claim [[11]] 14, further comprising providing an adaptation of a metering valve signal delivered by a metering control unit to the metering valve during metering operation as a function of the pressure difference measured in the predefined diagnosis time.

17. (Currently Amended) The method according to claim [[11]] 14, wherein further comprising starting the start signal includes diagnosis with at least one of: (a) a first diagnosis start signal supplied by an internal combustion engine control unit, (b) a second diagnosis start signal supplied by a freeze cycle counter, (c) a third diagnosis start signal supplied by an after-running control unit, and (d) a fourth diagnosis start signal supplied by a diagnosis device.

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18. (Currently Amended) A device for operating a metering valve which sets a flow rate of a reagent to be introduced into an exhaust gas area of an internal combustion engine, the device comprising a diagnosis control unit for performing the following:

providing a diagnosis of the metering valve including an analysis of a measure of a flow rate on the basis of a pressure difference during a diagnosis time;

after an occurrence of a diagnosis start signal, bringing the reagent to a predefined diagnosis start pressure while the metering valve is kept closed;

then setting the metering valve at a predefined flow rate;

fixedly predefining and analyzing the pressure difference; and

providing a warning signal when occurring during the diagnosis time exceeds a predefined diagnosis time limit.

19. (New) The device according to claim 18, wherein the device includes an arrangement configured to provide an adaptation of a metering valve signal delivered by a metering control unit to the metering valve during metering operation as a function of the ascertained measure for the flow rate.

20. (New) The device according to claim 18, wherein the device includes an arrangement configured to provide an adaptation of a metering valve signal delivered by a metering control unit to the metering valve during metering operation as a function of the pressure difference.

21. (New) The device according to claim 18, wherein a start of the diagnosis is triggered by at least one of: (a) a first diagnosis start signal supplied by an internal combustion engine control unit, (b) a second diagnosis start signal supplied by a freeze cycle counter, (c) a third diagnosis start signal supplied by an after-running control unit, and (d) a fourth diagnosis start signal supplied by a diagnosis device.

22. (New) The device according to claim 18, wherein the device is configured for starting the diagnosis with the start signal, which triggers the diagnosis control unit, and the diagnosis control unit is configured to analyze an amount of reagent dispensed by the metering valve during the diagnosis time and collected in a graduated breaker.

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23. (New) A device for operating a metering valve which sets a flow rate of a reagent to be introduced into an exhaust gas area of an internal combustion engine, the device comprising a diagnosis control unit for performing the following:

providing a diagnosis of the metering valve including an analysis of a measure of a flow rate on the basis of a pressure difference during a diagnosis time, the diagnosis control unit being triggered for a start of the diagnosis by a diagnosis start signal;

after an occurrence of the diagnosis start signal, bringing the reagent to a predefined diagnosis start pressure while the metering valve is kept closed;

then setting the metering valve at a predefined flow rate;

analyzing the pressure difference occurring during the diagnosis time; and

analyzing an amount of reagent dispensed by the metering valve during the diagnosis time and collected in a graduated breaker.

24. (New) The device according to claim 23, wherein the device includes an arrangement configured to provide an adaptation of a metering valve signal delivered by a metering control unit to the metering valve during metering operation as a function of the ascertained measure for the flow rate.

25. (New) The device according to claim 23, wherein the device includes an arrangement configured to provide an adaptation of a metering valve signal delivered by a metering control unit to the metering valve during metering operation as a function of the pressure difference.

26. (New) The device according to claim 23, wherein the start signal includes at least one of: (a) a first diagnosis start signal supplied by an internal combustion engine control unit, (b) a second diagnosis start signal supplied by a freeze cycle counter, (c) a third diagnosis start signal supplied by an after-running control unit, and (d) a fourth diagnosis start signal supplied by a diagnosis device.

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27. (New) A device for operating a metering valve which sets a flow rate of a reagent to be introduced into an exhaust gas area of an internal combustion engine, the device comprising a diagnosis control unit for performing the following:

providing a diagnosis of the metering valve including an analysis of a measure of a flow rate on the basis of a pressure difference during a diagnosis time;

after an occurrence of a diagnosis start signal, bringing the reagent to a predefined diagnosis start pressure while the metering valve is kept closed;

then setting the metering valve at a predefined flow rate;

fixedly predefining the diagnosis time; and

supplying a waning signal when the pressure difference exceeds a predefined pressure difference limit during the diagnosis time.

28. (New) The device according to claim 27, wherein the device includes an arrangement configured to provide an adaptation of a metering valve signal delivered by a metering control unit to the metering valve during metering operation as a function of the ascertained measure for the flow rate.

29. (New) The device according to claim 27, wherein the device includes an arrangement configured to provide an adaptation of a metering valve signal delivered by a metering control unit to the metering valve during metering operation as a function of the pressure difference measured in the predefined diagnosis time.

30. (New) The device according to claim 27, wherein a start of the diagnosis is triggered by at least one of: (a) a first diagnosis start signal supplied by an internal combustion engine control unit, (b) a second diagnosis start signal supplied by a freeze cycle counter, (c) a third diagnosis start signal supplied by an after-running control unit, and (d) a fourth diagnosis start signal supplied by a diagnosis device.

31. (New) The device according to claim 27, wherein the device is configured for starting the diagnosis with the start signal, which triggers the diagnosis control unit, and the diagnosis control unit is configured to analyze an amount of reagent dispensed by the metering valve during the diagnosis time and collected in a graduated breaker.

32. (New) The device according to claim 27, wherein the setting of the metering valve at the predefined flow rate includes opening the metering valve.

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33. (New) The method according to claim 14, further comprising:
starting the diagnosis with the start signal, which triggers a diagnosis control unit; and
analyzing an amount of reagent dispensed by the metering valve during the diagnosis time and collected in a graduated breaker.

34. (New) The method according to claim 14, wherein the setting of the metering valve at a predefined flow rate includes opening the metering valve.

35. (New) The method according to claim 13, further comprising providing an adaptation of a metering valve signal delivered by a metering control unit to the metering valve during metering operation as a function of the ascertained measure for the flow rate.

36. (New) The method according to claim 13, further comprising providing an adaptation of a metering valve signal delivered by a metering control unit to the metering valve during metering operation as a function of the pressure difference.

37. (New) The method according to claim 13, wherein a start of the diagnosis is triggered by at least one of: (a) a first diagnosis start signal supplied by an internal combustion engine control unit, (b) a second diagnosis start signal supplied by a freeze cycle counter, (c) a third diagnosis start signal supplied by an after-running control unit, and (d) a fourth diagnosis start signal supplied by a diagnosis device.

38. (New) The method according to claim 13, further comprising:
starting the diagnosis with the start signal, which triggers a diagnosis control unit; and
analyzing an amount of reagent dispensed by the metering valve during the diagnosis time and collected in a graduated breaker.

39. (New) The method according to claim 12, further comprising providing an adaptation of a metering valve signal delivered by a metering control unit to the metering valve during metering operation as a function of the ascertained measure for the flow rate.

40. (New) The method according to claim 12, further comprising providing an adaptation of a metering valve signal delivered by a metering control unit to the metering valve during metering operation as a function of the pressure difference.

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41. (New) The method according to claim 12, wherein the start signal includes at least one of: (a) a first diagnosis start signal supplied by an internal combustion engine control unit, (b) a second diagnosis start signal supplied by a freeze cycle counter, (c) a third diagnosis start signal supplied by an after-running control unit, and (d) a fourth diagnosis start signal supplied by a diagnosis device.